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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,282	08/15/2001	Finn Wredenhagen	1020457.0012	8113
20575	7590	08/25/2004	EXAMINER	
MARGER JOHNSON & MCCOLLOM PC 1030 SW MORRISON STREET PORTLAND, OR 97205			LE, BRIAN Q	
			ART UNIT	PAPER NUMBER
			2623	8
DATE MAILED: 08/25/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary

Application No.

09/929,282

Applicant(s)

WREDENHAGEN ET AL.

Examiner

Brian Q Le

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/15/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Drawings

1. The drawing is of insufficient quality for publication (Note handwritten portions).

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 1 and 5, the term “visually significant features” is not clearly understood by one skilled in the art. The Applicant needs to further explain the concept of “visually significant features”. Rejections are being made based on one’s best understanding.

Regarding claim 4, the concept of “sequence of relative shifts between adjacent rows” also needs to be clearly explained.

Claims not specifically addressed depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Greggain U.S. Patent No. 5,991,463.

Regarding claim 1, Greggain teaches an interpolator for processing an image (abstract) comprised of an array of pixels (pixels) (abstract), the interpolator comprising:

- (a) a feature extractor for processing a pixel sequence contained in the array of pixels to extract visually significant features therein (the process of calculating the smallest difference value which yield/generate an upsampled target pixel which interpreted by one skilled in the art as visually significant features) (column 5, lines 24-38 and column 6, lines 13-21);
- (b) a feature comparator for matching similar extracted features (column 3, lines 18-21 and column 3, 49-52) in adjacent pixel sequences (pixels along the same direction) (FIGs. 1-6).
- (c) an alignment controller using said matched features to select visually most relevant source pixels to generate a target pixel (The process of using comparing process to match features to generate target pixel) (column 2, lines 6-9).

For claim 2, Greggain teaches an interpolator said feature extractor including a state machine (since feature extractor was interpreted as the process of calculating the smallest difference value which yield/generate an upsampled target pixel, thus each state of computation is state machine) (FIG. 9 and column 19, table A).

Referring to claim 3, Greggain teaches an interpolator said feature comparator including a correlator for determine said feature similarities (column 6, lines 13-21).

Regarding claim 5, please refer back to claim 1 for the teaching and explanation.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Greggain U.S. Patent No 5,991,463 as applied to claim 1 above, and further in view of Fandrianto U.S. Patent No. 5,901,248.

Regarding claim 4, Greggain does not explicitly teach the computing a sequence of relative shifts between adjacent rows. Fandrianto further teaches an interpolation method comprises a step of computing a sequence of relative shifts between adjacent rows (column 17, Table 1 and column 18, Table 1). Modifying Greggain's method of interpolating an image according to Fandrianto would be able to provide a sequence of relative shifts to the interpolation and prediction error computations (column 14, lines 1-25). This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Greggain according to Fandrianto.

CONCLUSION

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to interpolation, matching and comparison between input and target pixels/images:

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U.S. Pat. No. 6,567,192 to Toyomura, teaches image reading apparatus involves interpolation.

U.S. Pat. No. 6,075,926 to Atkins, teaches computerized method for improving data resolution.

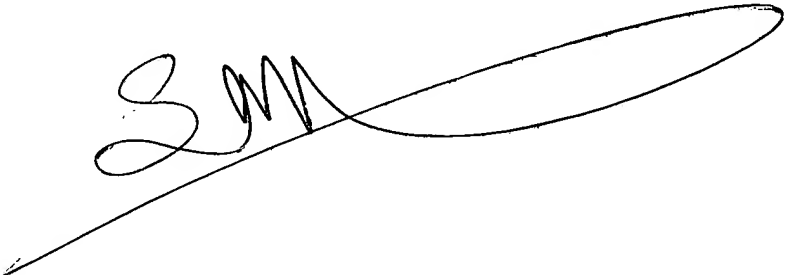
U.S. Pat. No. 6,570,616 to Chen, teaches image processing method in which image processing program is recorded.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q Le whose telephone number is 703-305-5083. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to TC Customer Service whose telephone number is 703-306-0377.

BL
August 17, 2004



**SAMIR AHMED
PRIMARY EXAMINER**